SOUND DEVICES

SL-6

Powering and Wireless System for the 688

User Guide

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FCC Part 15.19(a)(3)

Manual Conventions

Symbol	Description
>	This symbol is used to show the order in which you select menu commands and sub-options, such as: Main Menu > Audio indicates you press the Menu button for the Main Menu, then scroll to and select Audio by pushing the Control Knob.
+	A plus sign is used to show button or keystroke combinations. For instance, Ctrl+V means to hold the Control key down and press the V key simultaneously. This also applies to other controls, such as switches and encoders. For instance, MIC+HP turn means to slide and hold the MIC/TONE switch left while turning the Headphone (HP) encoder. METERS+SELECT means to hold the METERS button down as you press the SELECT encoder.
ⓘ	A note provides information and important related recommendations. The text for notes also appears italicized in a different color.
⚠	A cautionary warning about a specific action that could cause harm to you, the device, or cause you to lose data. Follow the guidelines in this document or on the unit itself when handling electrical equipment. The text for cautionary notes also appears in a different color, bold and italicized.

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Revision History

This table provides the revision history of this guide.

Rev#	Date	Description
1-A	June 2015	Initial Official Publication

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SL-6 Powering and Wireless System

The SL-6 offers built-in NP-1 battery powering for the 688 mixer, slot receivers, plus four additional DC outputs for external peripherals, as well as built-in antenna distribution.

Using Sound Devices' proprietary SuperSlot™ interconnection standard, the SL-6 offers all powering, audio interconnection and control needed for SuperSlot-compatible receivers.

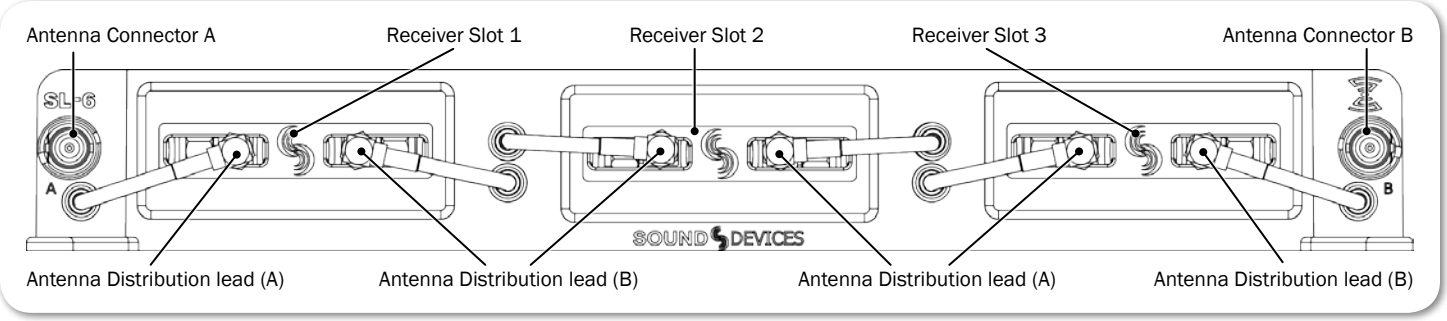
ⓘ *The SL-6 attaches to the top panel of the 688. Instructions for attaching the SL-6 to your mixer is provided in the SL-6 Quick Start Guide, which is shipped with the accessory. It is also available as a PDF download from the Sound Devices website.*

Topics in this section include:

- **Front Panel**
- **Right Panel**
- **Left Panel**
- **Powering with the SL-6**
  - Power Screen
  - SL-6 DC Outputs
  - SL-6 Power Settings
- **Using Antenna Distribution**
- **Using Wireless Receivers**
  - Selecting a Wireless Source
  - Accessing the Receiver Overview Screen
- **Unislot Receivers**
- **Using SuperSlot Receivers**
  - Receiver Details Screen - Example A
  - Receiver Details Screen - Example B

Front Panel

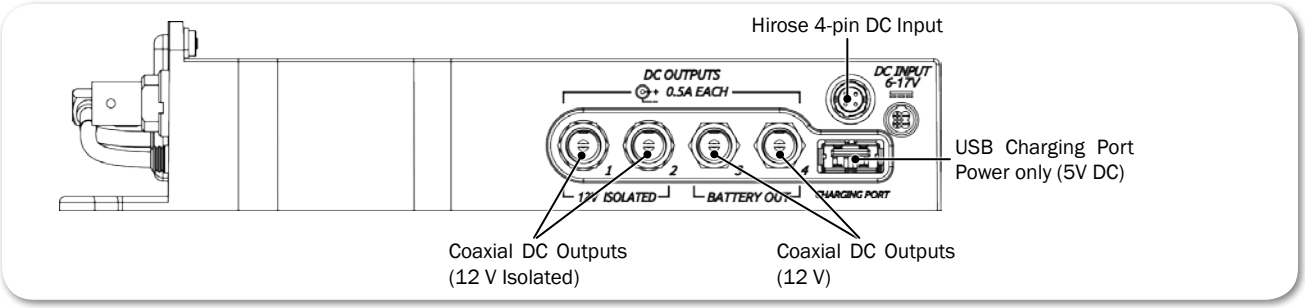
The front panel of the SL-6 has the following features:



Feature	Description
Receiver Slots	Each slot accepts one (single- or dual-channel) SuperSlot or unislot receiver. The connection provides power to the receiver and connects the receiver's audio output directly to the 688.
Antenna Distribution leads	SMA connectors with right-angle adapters are used to connect receivers to the SL-6 antenna distribution system.
Antenna Connectors	BNC connectors are used for attaching external antennas to the SL-6 antenna distribution system. ⓘ *Use BNC to SMA adapters, included with the SL-6, for antennas with SMA connectors.*

Right Panel

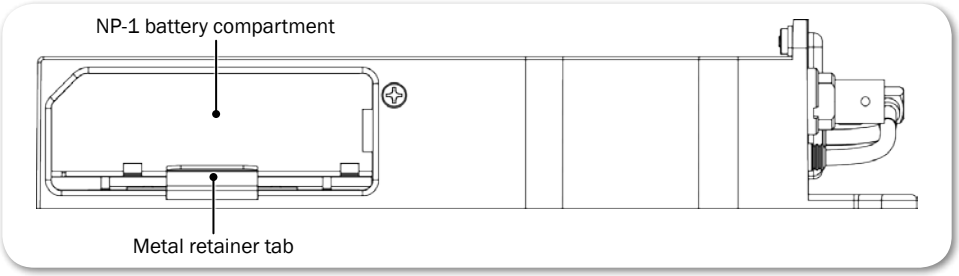
The right panel of the SL-6 has the following features:



Feature	Description
Hirose 4-pin DC Input	Hirose 4-pin DC input for powering the SL-6 and 688. Power must be attached to this connector or an NP-1 battery must be inserted to power the SL-6 and 688.
Coaxial DC Outputs (12 V Isolated)	Isolated 12 V DC outputs that draw from the active SL-6 power source (Hirose 4-pin or NP-1). Each output is on by default but can be switched off from the POWER section of the Main menu.
Coaxial DC Outputs (12 V)	12 V DC outputs that draw from the active SL-6 power source (Hirose 4-pin or NP-1). Each output is on by default but can be switched off from the POWER section of the Main menu.
USB Charging Port	Standard USB 5 V DC output that draws from the active SL-6 power source (Hirose 4-pin or NP-1). ⓘ *The USB port on the SL-6 is designed for charging only, not for data transfer.*

Left Panel

The left panel of the SL-6 provides the NP-1 battery compartment, which accepts NP-1 batteries (14 V, Li-ion or NiMH).



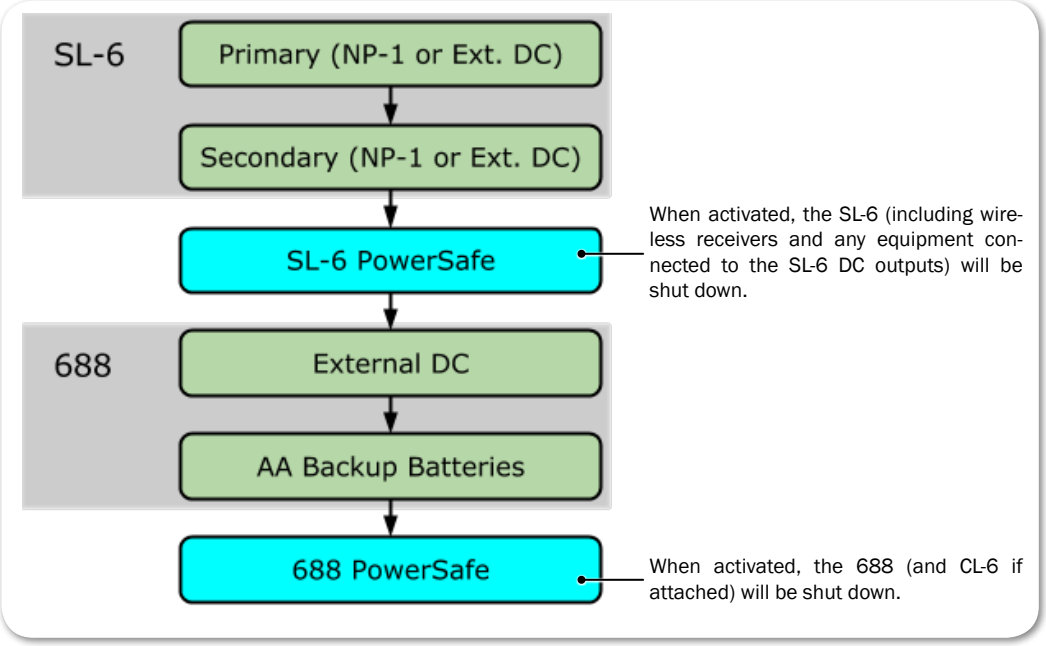
To insert an NP-1 battery:

1. Pull the retainer tab out until it clicks. It will stop when protruding about 1 inch from the unit.
2. Place the end of the NP-1 battery with the metal contacts into the battery compartment with contacts facing down.
3. Push the NP-1 battery into the battery compartment until the retainer tab securely snaps over the end of the battery.

Powering with the SL-6

The SL-6 features two power inputs: NP-1 battery and external DC. The SL-6, its attached receivers, the 688 (and CL-6, if connected), and any devices powered from the SL-6 DC outputs require one of these power sources to operate. When both SL-6 power sources are depleted or disconnected, the SL-6 PowerSafe™ battery will keep the SL-6 and attached devices powered for 10 seconds while recording is stopped. If any power source is attached to the 688's external DC input, or if internal AA batteries are present, the 688 (and CL-6, if attached) will continue to operate using those power sources.

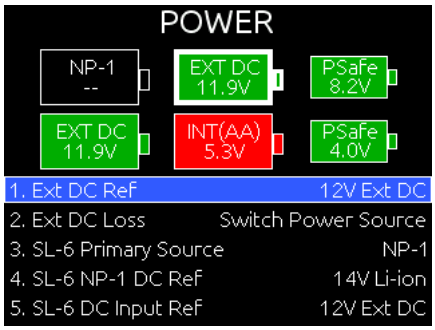
ⓘ *Power sources connected directly to the 688 (external DC or the internal AA batteries) will not power the SL-6 or any attached peripheral devices.*


SL-6
Primary (NP-1 or Ext. DC)
Secondary (NP-1 or Ext. DC)
SL-6 PowerSafe
When activated, the SL-6 (including wireless receivers and any equipment connected to the SL-6 DC outputs) will be shut down.
688
External DC
AA Backup Batteries
688 PowerSafe
When activated, the 688 (and CL-6 if attached) will be shut down.

When the SL-6 is attached, the battery icon on the Main screen will display NP or EX to indicate which power source is active.

Power Screen

When the SL-6 is attached to the 688, the mixer's Power screen displays the voltage level of the attached NP-1 battery, the SL-6 external DC power source, and the SL-6 PowerSafe battery, in addition to the 688's own power sources.



SL-6 DC Outputs

The SL-6 right panel features four DC power outputs via locking coaxial connectors (numbered 1 through 4) and a USB charging port. Outputs 1 through 4 are 12 V DC outputs that draw from the active SL-6 power source. Outputs 1 and 2 are isolated and do not share a common ground with the system.

To turn a DC output on or off:

1. Press the MENU button to access the Main menu.
2. Turn and press the Headphone encoder to select POWER > SL-6 Power Outputs.
3. Turn and press the Headphone encoder to select an output and set it to On or Off.

To protect NP-1 batteries from exceeding their maximum discharge current, when total power draw reaches 45 watts, the 688 displays a warning message. When total power draw reaches 50 watts (SWIT battery) or 53 watts (IDX battery), the DC outputs will be turned off in descending order (output 4 - 1) until power draw drops below 45 watts. First the USB charging port will be disabled, then DC Output 4, DC Output 3, DC Output 2, and finally DC Output 1. You can manually turn outputs back on when power draw drops below 45 watts.

SL-6 Power Settings

When the SL-6 is attached, the following settings are available in the Main menu's POWER section.

Sub-Menu Name	Description	Options
SL-6 Primary Source	Selects primary power source.	• NP-1 • DC Input
SL-6 NP-1 DC Ref	Calibrates the power level indicator according to the type of NP-1 battery in use. The default is 14V Li-ion.	• 14V Li-ion • NiMH
SL-6 DC Input Ref	Calibrates the power level indicator according to the type of external DC source. The default is 12V Ext DC.	• 12V Ext DC • NiMH • Expanded NiMH • 12V Lead Acid • 14V Li-ion • Full Range
SL-6 Power Outputs	Sub-menu where each DC power output can be turned on or off.	• Output 1 (12V Isolated) • Output 2 (12V Isolated) • Output 3 (Battery) • Output 4 (Battery) • USB Charging Port

Using Antenna Distribution

Two BNC antenna connections (A and B) are provided for attaching antennas to the antenna distribution system. Antennas with an SMA connection may be used with a BNC to SMA adapter, which is included with the SL-6.

The antennas on the SL-6 provide improved diversity performance due to wider spacing than those directly mounted on the receivers. This can reduce the instances of signal dropouts due to destructive cancellation of reflecting RF signals.

Good performance will be obtained when antennas are mounted directly to the SL-6 BNC connectors. Quarter wave whip antennas are typically used in this scenario with the SL-6 housing providing the reference plane.

Better performance will usually be observed with a higher elevation of the receive antenna. This can provide a more direct line of sight to the transmitter which improves signal strength. Shoulder mounted antennas are one example. Care should be used with antenna selection in this scenario. Some antennas, such as quarter wave (also known as quarter wave whip antennas), require a ground plane (metallic reflective surface usually perpendicular to the antenna). Others, such as a half wave antenna and log periodic antenna (Also referred to as paddle antenna), can be remotely mounted and do not require a ground plane.

For best performance, Sound Devices recommends directional remote antennas. Independent 12 volt antenna bias for powering active antennas is provided at each SL-6 antenna BNC connector.

Many variables are involved with a successful RF link. As such, results for each operation may vary.

Antenna Bias Power

If needed, 12V bias power may be provided to each antenna.

To supply bias power to an antenna:

1. Press the MENU button to access the Main menu.
2. Do one of the following:
   - ▶ Turn and press the Headphone encoder to select SL-6 > Antenna A Power.
   - ▶ Turn and press the Headphone encoder to select SL-6 > Antenna B Power.
3. Turn and press the Headphone encoder to turn bias power on or off.

Radio Frequency (RF) Filter

The SL-6 provides RF filtering which can allow operation in the presence of interfering signals such as cell phones and TV stations. Selection is provided for four different frequency ranges of operation.

To enable the RF filter:

1. Press the MENU button to access the Main menu.
2. Turn and press the Headphone encoder to select SL-6 > Antenna Filter.
3. Turn and press the Headphone encoder to select a filter range.

Using Wireless Receivers

The SL-6 supports SuperSlot and unislot receivers on a DB-25 connection. The SL-6 receiver slots provide power and audio connection to both types of receivers. Additionally, SuperSlot receivers can be controlled from the 688 interface.

To connect antennas to the SL-6:

▶ Connect each antenna directly to each BNC Antenna Connector on the SL-6.

To connect a receiver to the SL-6:

ⓘ *Mounting procedures for receiver models may vary. Refer to the receiver manufacturer's documentation for your receiver and follow the specific mounting instructions.*

⚠ ***The Lectrosonics SRb5P can not be connected to slot 1 of the SL-6. Using the blue spacer (Provided with the receiver), the SRb5P can be connected to slot 2 or 3.***

1. Power off the 688.
2. The SL-6 ships with rubber slot protectors that hold the SMA antenna connectors with right-angle adapters secure during transport. These must be removed prior to use, so remove the connector, then pull the rubber cover off to expose the chosen slot.

ⓘ *Do not discard protectors; Sound Devices recommends storing the connectors with their right-angle adapters in the rubber slot protectors when not in use.*

3. Slide the receiver into slot on the SL-6. If necessary, use the provided spacer.
4. Screw the four mounting screws through the receiver and into the SL-6.

⚠ ***Use only the screws provided with the receiver. Longer screws can damage the SL-6.***

5. Attach each antenna distribution lead to the receiver by screwing the SMA

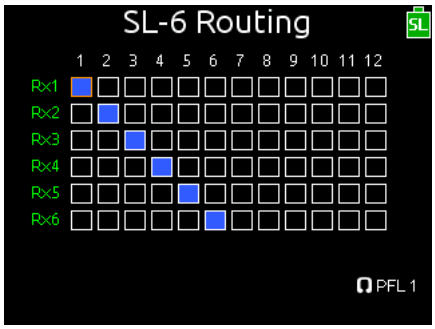
connector on both sides of the receiver.

Selecting a Wireless Source

SL-6 wireless receiver outputs are routed to 688 inputs via the SL-6 Routing screen. One wireless receiver output can be routed to one 688 input.

To route a receiver to an input:

1. Slide the PFL switch to access the Input Settings screen for the respective input.
2. Press the Headphone encoder to display the list of available input sources.
3. Turn and press the Headphone encoder to select SL-6. The SL-6 Routing screen is displayed. Wireless receiver outputs are represented as rows and 688 inputs are represented as columns. Blue boxes indicate active assignments.



4. Do any of the following:
   - Turn the Select encoder to move the orange highlight vertically and press the encoder to activate or deactivate the route.
   - Turn the Headphone encoder to move the orange highlight horizontally and press the encoder to activate or deactivate the route.

ⓘ *When a wireless receiver output is routed to a 688 input, that channel's input source is set to SL-6. When a wireless receiver output is not routed from a 688 input, that channel's input source is set to OFF.*

Accessing the Receiver Overview Screen

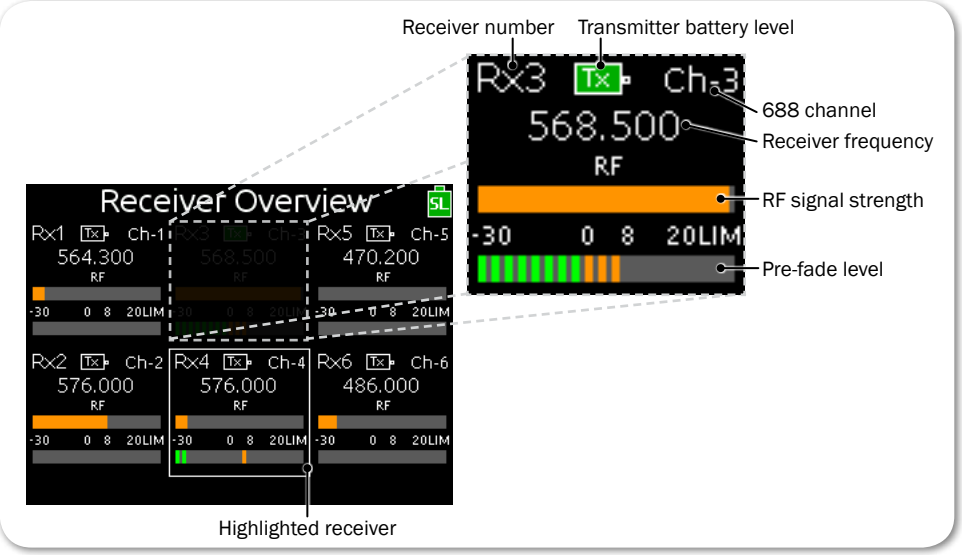
The Receiver Overview screen displays summary information for all receivers connected to the SL-6. Information on this screen is read-only.

To access the Receiver Overview screen via button shortcut:

- HP + METERS: Press the Headphone encoder, then press the METERS button.

To access the Receiver Overview screen from the Main menu:

1. Press the MENU button.
2. Turn and press the Headphone encoder to select SL-6 > Receiver Overview.



When supported by the transmitter, the transmitter battery level is indicated by the color of the battery icon: Green = over 50%, Yellow = over 20%, Orange = over 10%, Red = less than 10%. Whenever the transmitter battery level information is not supported by the transmitter, the icon is black.

Unislot Receivers

Configuration of unislot receivers is done on the receivers themselves, not from the 688; therefore, the Receiver Details screen is not available for unislot receivers.

Using SuperSlot Receivers

When the 688 is powered on, the SL-6 will power receivers automatically, and attached SuperSlot receivers will boot up with their panel buttons locked.

ⓘ *Sound Devices recommends, if the 688 is powered on, you do not power down attached SuperSlot receivers. If SuperSlot receivers are powered down manually (by unlocking the receivers' front panel buttons), the receivers will not be recognized until they are powered on manually and the 688 is rebooted.*

SuperSlot receivers can be configured from the 688 user interface. Detailed information for each attached SuperSlot receiver is displayed on the 688 via a Receiver Details screen. Adjustments to SuperSlot receivers may be made from this screen.

The screen's title will show the type or model of the receiver. Based on your receiver, information on screen could vary; refer to the receiver manufacturer's documentation provided with your receiver(s) for more information.

To access the Receiver Details screen from the Receiver Overview screen:

1. METERS + HP: Press the METERS button, then push in the Headphone encoder to access the Receiver Overview screen.
2. Turn and press the Headphone encoder to select a receiver.

ⓘ *Use the shortcut HP+PFL(1-6) for direct access to the Receiver Details screen for each receiver. This bypasses the Receiver Overview screen, showing data for all slotted receivers.*

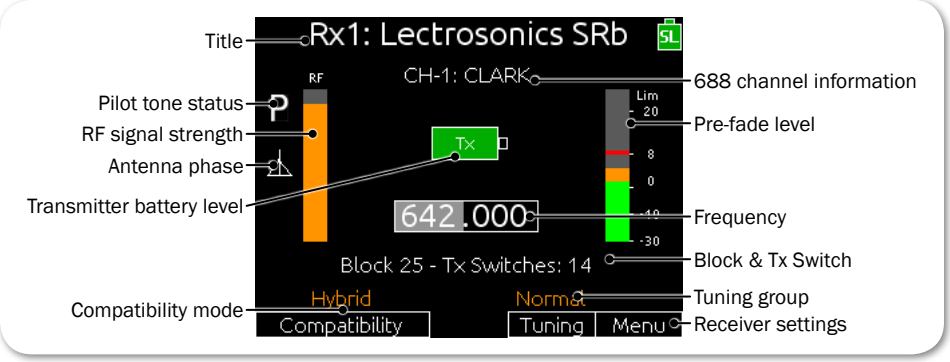
Receiver tuning is presented uniquely, based on each manufacturer's receiver model. Current tuning values are displayed in outlined boxes on the Receiver Details screen.

To adjust a receiver's tuning:

1. Access the Receiver Details screen.
2. Turn and press the Headphone encoder to enter editing mode for the selected field. The background color of the field will become blue to indicate editing mode.
3. Turn the Headphone encoder to adjust the value.
4. Press the Headphone encoder to accept the value.

Receiver Details Screen - Example A

Information provided on the Receiver Details screen depends on your receiver model. This guide provides a couple of examples. The following example of the Receiver Details screen is for a Lectrosonics SRb. Refer to Lectrosonics documentation for further explanation of these settings.



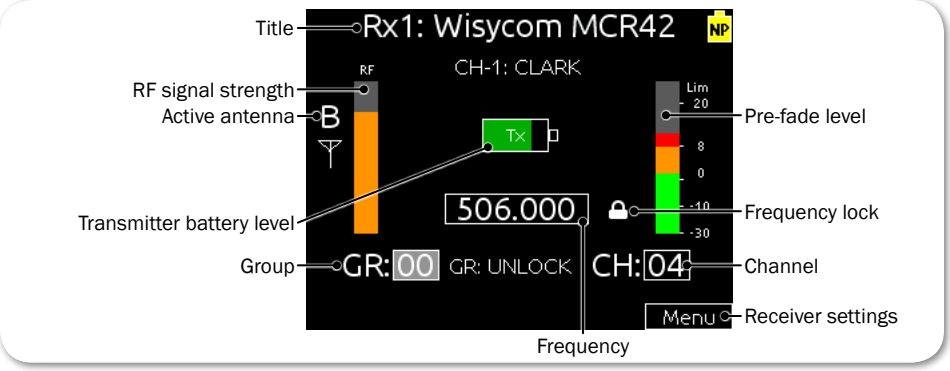
Screen Element	Description
Title	Screen's title displays the number of the receiver followed by the manufacturer and model name.
Pilot tone status	Different letters are displayed based on status of pilot tone. • Solid P: Pilot tone from transmitter is present. • Flashing P: Pilot tone is not present. • Solid, lower-case b: Pilot tone is bypassed.
RF signal strength	Displays the strength of the RF signal.

Screen Element	Description
Antenna phase	The antenna icon is displayed when Switching Diversity mode is active on the receiver. Icon will flip vertically when antenna phase is inverted.
Transmitter battery level	Displays the level of the transmitter's battery. The transmitter battery level is indicated by the color of the battery icon and the level of the bar. Green = over 50%, Yellow = over 20%, Orange = over 10%, Red = less than 10%. When the transmitter battery level information is not supported, the icon is black. ⓘ *This information is only provided when supported and supplied by the transmitter.*
Compatibility	Displays the current compatibility mode of the receiver. **To cycle through compatibility modes:** ▶ Slide MIC/TONE switch left or right.
688 channel information	Displays the name and number of the 688 channel to which the receiver is routed.
Pre-fade level	Displays pre-fade audio level of the receiver's output on the 688 input to which it is routed.
Frequency	Displays the frequency to which the receiver is currently tuned. Whole number and decimal number are adjusted independently. Decimal adjustments in .1 (Normal tuning) or .025 increments (Fine tuning). **To adjust frequency:** ▶ Turn and press Headphone encoder.
Block & Tx Switch	Displays the block number and transmitter switch value.
Tuning	Displays current tuning group. When adjusting frequency, values will be restricted to the selected tuning group. "Fine" sets increment to .025, and "Normal" sets increment to .1 **To cycle through tuning groups:** ▶ Slide RTN/FAV switch left.
Menu	Accesses the receiver's model-specific settings. Slide RTN/FAV switch to access menu. **To access receiver's settings:** ▶ Slide RTN/FAV switch right.

Receiver Details Screen - Example B

The following example of the Receiver Details screen is for a Wisycom MCR42. Refer to Wisycom documentation for further explanation of these settings.

ⓘ *This section applies to Wisycom receivers with firmware version 3.5 or later. Wisycom receivers with earlier versions of firmware will be treated as unislot receivers; therefore, the Receiver Details screen will not be accessible.*



Screen Element	Description
Title	Screen's title displays the number of the receiver followed by the manufacturer and model name.
RF signal strength	Displays the strength of the RF signal.
Active antenna	Displays A or B to indicate which antenna is currently in use.
Transmitter battery level	Displays the level of the transmitter's battery. The transmitter battery level is indicated by the color of the battery icon and the level of the bar. Green = over 50%, Yellow = over 20%, Orange = over 10%, Red = less than 10%. When the transmitter battery level information is not supported, the icon is black. ⓘ *This information is only provided when supported and supplied by the transmitter.*
GR:	Displays the current group number of the receiver. **To set the group number:** ▶ Turn and press Headphone encoder
Pre-fade level	Displays pre-fade audio level of the receiver's output on the 688 input to which it is routed.
Frequency lock	Lock icon is visible for channels in which the frequency is locked. Frequency cannot be adjusted when locked.
CH:	The channel number of the receiver. **To set the channel number:** ▶ Turn and press Headphone encoder
Menu	Accesses the receiver's model-specific settings. **To access receiver's settings:** ▶ Slide RTN/FAV switch right
Frequency	Displays the frequency to which the receiver is currently tuned. Whole number and decimal number are adjusted independently. Decimal adjustments in .025 increments. Not adjustable when frequency is locked. **To adjust frequency:** ▶ Turn and press Headphone encoder.

SL-6 Specifications

This section provides specifications for the SL-6 powering and wireless system, an optional accessory for the 688.

Features and specifications are subject to change. Visit the Sound Devices website for the latest product information.

Topics in this section include:

- Powering
- Antenna Distribution
- Physical

Powering

Name	Description
External Power Supply	• 10 to 18 V on locking 4-pin Hirose connector • Pin-4 = (+), Pin-1 = (-) • Mates with gold Hirose #HR10A-7P-4P (DigiKey# HR110-ND) or silver Hirose #HR10-7P-4P (DigiKey# HR100-ND) locking connector
PowerSafe	• 10 second power reserve to SL-6, 688 (and CL-6 if connected), and attached peripherals.
USB Charging port	• 5 V, 2 A max
DC Outputs 1-2	• Locking, coaxial connector • Isolated • 12 V, 0.5 A max
DC Outputs 3-4	• Locking, coaxial connector • 10 to 17 V, 0.5 A max

Antenna Distribution

Name	Description
Antenna impedance	• 50 ohm
Antenna bias voltage	• 12 V @ 200 mA
Antenna filter ranges	• 470-870 MHz • 470-700 MHz • 470-590 MHz • 580-700 MHz

Physical

Name	Description
Dimensions (H x W x D)	• 1.4 in x 12.7 in x 5.6 in • 3.6 cm x 32.3 cm x 14.2 cm
Weight (without receivers)	• 2 lbs 6 oz • 1.08 kg

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